Notice of Allowability	Application No. 10/086,283	Applicant(s) PALDUS ET AL.	
	Examiner Tuan N Nguyen	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *02/28/2002*.

2. ☒ The allowed claim(s) is/are *1-58*.

3. ☐ The drawings filed on _____ are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☒ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *4/26/04* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Wilson Lee
Primary Examiner

EXAMINER'S AMENDMENT

Drawings

1. New corrected drawings are required in this application because it is not acceptable to the draftsperson, see the attached Notice of Draftsperson drawing review.

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no latter than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Herbert Burkard (Attorney for Applicant, Reg. No. 24500) on 4/26/2004.

3. In the claims:

a. Claim 6, line 3, after "said hologram", add – only at λo --;

b. Claim 8, line 2, after "optic interaction", add – and wherein said SDSF is an AOTF --;

c. Claim 12, replaced as follow:

-- A laser formed by an optical resonator comprising :
a) a pump gain medium comprising a single-mode optical waveguide, having first and second endfaces where said first endface is an output coupler of said optical resonator, from which medium a beam with total power Pa is emitted from said second endface,
b) coupling optics which receive the beam emitted from said second endface and transmit it to,
c) a spectrally dependent spatial filtering (SDSF) tuning element which receives said transmitted beam and which allows said received beam to exit from the

tuning element as a beam that is attenuated and distorted without a frequency shift, wherein the extend of the attenuation and distortion depends on said received beam wavelength, and wherein said SDSF tuning element includes control means to alter the wavelength dependence of the beam distortion and attenuation, and

d) a return mirror which reflects said non frequency-shifted beam back such that the total round trip loss attains a minimum value at a wavelength λo selected by said SDSF tuning element, whereby λo is the wavelength of the beam emitted from said second endface and whereby said reflected beam impinges on said second endface with a total power Pb, with a lesser optical power Po being launched into the gain medium waveguide, such that Po/Pa has a maximum value at a wavelength λo where the total loss due to mode mismatching and attenuation in the external cavity is minimized, where λo is selected by said SDSF tuning element in response to said control means applied to said SDSF tuning element, and wherein λo is the wavelength of the beam emitted from said first endface. --

d. Claim 13, line 3, after "said hologram", add – only at λo --;

e. Claim 15, line 2, after "interaction", add – and wherein said SDSF is an AOTF --;

f. Claim 20, line 3, after "said hologram" add – only at λo --;

g. Claim 22, line 2, after "interaction", add – and wherein said SDSF is an AOTF --;

h. Claim 26, replaced as follow:

-- A laser formed by an optical resonator comprising:

a) a pump gain medium comprising a single-mode optical waveguide, having first and second enfaces from which medium a beam with total power Pa is emitted from said second endface,

b) a volume hologram tuning element which receives said emitted beam and which is aligned such that the propagation direction of said beam within said optical resonator is nominally unchanged by transmission through said hologram only at a wavelength λo selected by said hologram,

whereby said received beam impinges on said first or said second endface with an optical power Po, being launched into the gain medium waveguide, such that Po/Pa has a maximum value at waveguide λo at which wavelength the total loss in the external cavity is minimized, where λo is selected by said volume hologram whereby λo is the laser emission wavelength. - -

i. Claim 27, line 2, after "optical resonator," add – to thereby generate an optical beam --;

line 9, replace - - e) --, with - - f) - -
line 11, replace - - f) --, with - - e) - -

j. Claim 28, line 4, after "said hologram", add – only at λo --;

k. Claim 30, line 2, after "interaction", add – and wherein said SDSF is an AOTF --;

l. Claim 31,
line 3, replace - - g) --, with - - f) - -
line 6, replace - - h) --, with - - g) - -
line 8, replace - - i) --, with - - h) - -
line 10, replace - - j) --, with - - i) - -

m. Claim 32, line 4, after "said hologram" add – only at λo --;

n. Claim 34, line 2, after "interaction", add – and wherein said SDSF is an AOTF --;

o. Claim 35, line 7, after "secondary output coupler," add – and --;

p. Claim 36, line 4, after "said hologram" add – only at λo --;

q. Claim 39, line 8, after "laser beam from", delete – a surface of --,

line 10, after "coupler", add - - and –
line 12, after "emission wavelength and ", delete - - the --, add - - a--

r. Claim 40, line 4, after "said hologram" add – only at λo --;

s. Claim 42, line 2, after "interaction", add – and wherein said SDSF is an AOTF --;

t. Claim 43, line 9, replace - - d) --, with - - e) –

line 11, replace - - e) --, with - - d) --

u. Claim 44, line 4, after "said hologram" add – only at λo --;

v. Claim 46, line 2, after "interaction", add – and wherein said SDSF is an AOTF --;

w. Claim 48, line 4, after "said hologram" add – only at λo --;

x. Claim 46, line 2, after "interaction", add – and wherein said SDSF is an AOTF --;

y. Claim 52, line 4, after "said hologram" add – only at λo --;

z. Claim 54, line 2, after "interaction", add – and wherein said SDSF is an AOTF --;

aa. Claim 56, line 4, after "said hologram" add – only at λo --;

bb. Claim 58, line 2, after "interaction", add – and wherein said SDSF is an AOTF --;

REASON FOR ALLOWANCE

Allowable Subject Matter

4. The following is an examiner's statement of reasons for allowance - with respect to claims 1, 5, 12, 19, 26, 27, 43 the references of the record fail to teach or suggest:

5. A laser formed by an optical resonator comprising: a) an electrically pumped semiconductor gain medium comprising a single-mode optical waveguide having first and second endfaces, where said first endface is an output coupler of said optical resonator, from which a beam with total power Pa is emitted from said second endface, b) a lens which receives said emitted beam and transnéts it to, c) an acousto-optic device which receives said transmitted beam, wherein said received beam is distorted and attenuated, but not frequency shifted, in the course of transmission through the acousto-optic device, and wherein the extent of the distortion and attenuation is dependent on the received beam wavelength and the RF frequency applied to the acousto-optic device, and d) a return mirror which reflects said non frequency-shifted beam back through said acousto-optic device and said lens, whereby said reflected beam impinges on said second endface with a total power Pb, with a lesser optical power Po being launched into the gain medium waveguide, such that Po/Pa has a maximum value at a wavelength λo where the

total loss due to mode mismatching and attenuation in the external cavity is minimized, where λo selected by said acousto-optic device in response to the RF frequency applied to said acousto-optic device, and wherein λo is the wavelength of laser emission from said first endface.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Tuan N. Nguyen

April 26, 2004

Wilson Lee
Primary Examiner